

REMARKS

This is in full and timely response to the Office Action mailed on May 14, 2004.
Reexamination in light of the following remarks is respectfully requested.

Claims 21-58 are currently pending in this application, with claims 21 and 41 being independent. No new matter has been added.

Rejection of the claims

While not conceding the propriety of this rejection and in order to advance the prosecution of the above-identified application, claims 1-20 have been canceled without prejudice or disclaimer of their underlying subject matter, rendering these rejection as moot.

Newly added claims

Claim 21 and the claims dependent thereon include the features of:

a pick-up block structurally adapted to capture living body information and to output a pick-up signal depicting said living body information;

A/D converter structurally adapted to convert said pick-up signal into a gray scale image composed of a plurality of gray scale pixels, a gray scale pixel of said plurality gray scale of pixels having a gray scale pixel value expressed by a plurality of bits;

a image processor structurally adapted to generate a binary image from said gray scale image, a binary image pixel of said binary image being generated by comparing said gray scale pixel value with an average of gray scale pixel values for said plurality of gray scale pixels, said binary image pixel having a binary pixel value expressed by a single bit; and

an encryption block having a random number generator structurally adapted to generate a random number sequence from said pick-up signal when no living body

information is captured by said pick-up block, said random number sequence being generated using either said gray scale pixel value or said binary pixel value.

Claim 41 and the claims dependent thereon include the steps of:

capturing living body information;

outputting a pick-up signal depicting said living body information;

converting said pick-up signal into a gray scale image composed of a plurality of gray scale pixels, a gray scale pixel of said plurality gray scale of pixels having a gray scale pixel value expressed by a plurality of bits;

generating a binary image from said gray scale image, a binary image pixel of said binary image being generated by comparing said gray scale pixel value with an average of gray scale pixel values for said plurality of gray scale pixels, said binary image pixel having a binary pixel value expressed by a single bit; and

generating a random number sequence from said pick-up signal when no living body information is captured by said pick-up block, said random number sequence being generated using either said gray scale pixel value or said binary pixel value.

U.S. Patent No. 6,215,874 to Borza et al. (Borza) arguably teaches a random number generator. Borza arguably teaches that all 60,000 pixels can be summed and averaged (column 4, lines 65-66). Borza arguably teaches that for each transducer and average value is determined (column 9, lines 38-39).

However, Borza fails to disclose, teach or suggest generating a binary image from the gray scale image, a binary image pixel of the binary image being generated by comparing the gray scale pixel value with an average of gray scale pixel values for the plurality of gray scale pixels, the binary image pixel having a binary pixel value expressed by a single bit.

U.S. Patent No. 5,774,549 to Neilson arguably teaches a method and apparatus that processes a video signal to generate a random number generator seed. Neilson arguably teaches that if a sliding area is determined to be $3 * 3$ pixels, then for the first $3 * 3$ pixel area in the current video image signal VI_i , the values of the pixels are averaged (column 4, lines 24-26). Neilson arguably teaches that, for the previously received video image signal, the values of the pixels in the corresponding $3 * 3$ pixel area are averaged (column 4, lines 26-28). Neilson arguably teaches that the difference is determined between the two averages. (column 4, lines 28-29). Neilson arguably teaches that the $3 * 3$ pixel area is "slid" one pixel at a time, first over, and then down, and the averaging and differencing operation is repeated for each new $3 * 3$ pixel area (column 4, lines 29-32). Neilson arguably teaches that, when the averaging and differencing operation has been performed on all the $3 * 3$ pixel areas in the image signals, the absolute value of the differences for all the areas are summed together and compared to the threshold value T (column 4, lines 32-36).

But Neilson fails to disclose, teach or suggest generating a binary image from the gray scale image, a binary image pixel of the binary image being generated by comparing the gray scale pixel value with an average of gray scale pixel values for the plurality of gray scale pixels, the binary image pixel having a binary pixel value expressed by a single bit.

U.S. Patent No. 6,259,801 to Wakasu arguably teaches a method for inserting and detecting a watermark.

Yet, Wakasu fails to disclose, teach or suggest generating a binary image from the gray scale image, a binary image pixel of the binary image being generated by comparing the gray scale pixel value with an average of gray scale pixel values for the plurality of gray scale pixels, the binary image pixel having a binary pixel value expressed by a single bit.

U.S. Patent No. 5,541,994 to Tomko et al. (Tomko) arguably teaches a fingerprint controlled public key cryptographic system.

Nevertheless, Tomko fails to disclose, teach or suggest generating a binary image from the gray scale image, a binary image pixel of the binary image being generated by

comparing the gray scale pixel value with an average of gray scale pixel values for the plurality of gray scale pixels, the binary image pixel having a binary pixel value expressed by a single bit.

The Office Action cites Schneider. However, the document provided along with the Office Action having pages 466-474 fails to include a cover sheet. Thus, the Office Action is incomplete.

Nevertheless, this document fails to disclose, teach or suggest generating a binary image from the gray scale image, a binary image pixel of the binary image being generated by comparing the gray scale pixel value with an average of gray scale pixel values for the plurality of gray scale pixels, the binary image pixel having a binary pixel value expressed by a single bit.

U.S. Patent Application No. 20020124176 to Epstein arguably teaches biometric identification mechanism that preserves the integrity of the biometric information.

However, Epstein fails to disclose, teach or suggest generating a binary image from the gray scale image, a binary image pixel of the binary image being generated by comparing the gray scale pixel value with an average of gray scale pixel values for the plurality of gray scale pixels, the binary image pixel having a binary pixel value expressed by a single bit.

Allowance of the claims is respectfully requested.

Conclusion

For the foregoing reasons, all the claims now pending in the present application are allowable, and the present application is in condition for allowance. Accordingly, favorable reexamination and reconsideration of the application in light of the amendments and remarks is courteously solicited.

If the Examiner has any comments or suggestions that could place this application in even better form, the Examiner is requested to telephone Brian K. Dutton, Reg. No. 47,255, at 202-955-8753 or the undersigned attorney at the below-listed number.

If any fee is required or any overpayment made, the Commissioner is hereby authorized to charge the fee or credit the overpayment to Deposit Account # 18-0013.

Dated: August 16, 2004

Respectfully submitted,

By _____

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